

REMARKS

Claims 1-5, 7, and 17 are canceled, claims 6 and 8-12 have been amended, and claims 18-22 have been added by this amendment. Upon entry of this amendment, claims 6, 8-16, and 18-22 will be pending in the above-identified Application.

Applicant acknowledges the Interview Summary dated August 19, 2004, wherein the Examiner confirmed that the Office Action dated July 20, 2004, is a non-final action.

Enclosed is a Credit Card Payment Form authorizing payment of the fee for a one month extension of time. The Commissioner is hereby authorized to credit overpayments or to charge any deficiency in a required fee to Deposit Account No. 19-3140.

Claim 6 – Section 102 (Verhaverbeke)

Applicants respectfully request reconsideration of the rejection of claim 6 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,261,845 (Verhaverbeke). Claim 6 recites a substrate cleaning apparatus for cleaning a substrate comprising a substrate cleaning bath to contain therein a substrate cleaning liquid comprising at least one liquid selected from a first group consisting of an aqueous solution of ammonium fluoride and a mixture of an aqueous solution of ammonium fluoride and hydrofluoric acid, measuring means for measuring characteristics of the cleaning liquid in the substrate cleaning bath, the characteristics being relative to the hydrofluoric acid concentration of the cleaning liquid, fluid feeding means for feeding at least one fluid selected from a second group consisting of ammonia and aqueous ammonia from a fluid source to the substrate cleaning bath, and control means for arithmetically processing a signal from the measuring means while cleaning a substrate to control the feeding of the fluid from the fluid source to the substrate cleaning bath by way of the fluid feeding means.

Verhaverbeke discloses a system for semiconductor processing wherein ammonia is added to a processing liquid in amounts proportional to a measurement of conductivity. The level of conductivity directly relates to the concentration of ammonium hydroxide. Also in Verhaverbeke, hydrogen peroxide is added to the processing liquid in amounts proportional to a pH measurement. The pH measurement directly relates to the concentration of hydrogen peroxide. In these instances, ammonia and hydrogen

peroxide are added to the processing stream in proportion to the determined level of ammonium hydroxide and hydrogen peroxide, respectively, in the stream. In contrast, the present invention adds ammonia or aqueous ammonia in proportion to the determined level of hydrofluoric acid. Further, as the Office Action points out in lines 7 and 8 of page 3, Verhaverbeke teaches measuring means for **measuring flow rates** in the liquid processing stream. However, claim 6 recites measuring means for measuring characteristics of the cleaning liquid in the substrate cleaning bath, the characteristics being relative to the hydrofluoric acid concentration of the cleaning liquid. Suppressing rises in hydrofluoric acid with controlled additions of ammonia or aqueous ammonia is novel, non-obvious, and more effective than prior art methods. Verhaverbeke does not disclose measuring means for measuring characteristics of the cleaning liquid in the substrate cleaning bath, the characteristics being relative to the hydrofluoric acid concentration of the cleaning liquid, fluid feeding means for feeding at least one fluid selected from a second group consisting of ammonia and aqueous ammonia from a fluid source to the substrate cleaning bath, and control means for arithmetically processing a signal from the measuring means while cleaning a substrate to control the feeding of the fluid from the fluid source to the substrate cleaning bath by way of the fluid feeding means.

The Office Action also asserts that the recited fluids are not structural because of MPEP § 2115 and *Ex parte Thibault*, 164 U.S.P.Q. 666 (Bd. App. 1969). However, the "fluid feeding means" is positively recited as a structural component of the "substrate cleaning apparatus" in claim 6. MPEP § 2115 and *Thibault* refer to the unpatentability of materials or articles worked upon by an apparatus. In claim 6, the material or article worked upon by the apparatus is clearly the "substrate." Instead of the apparatus somehow working on the "fluid feeding means," as the Office Action appears to assert, claim 6 plainly shows the "fluid feeding means" as an affirmative part of the apparatus that works to clean the "substrate" when the apparatus is in use.

Because Verhaverbeke does not disclose or suggest all of the elements of claim 6, the Section 102 rejection is improper. Accordingly, Applicants respectfully request the rejection be withdrawn.

Claims 6, 8, 12, and 13 – Section 102 (JP '461)

Applicants respectfully request reconsideration of the rejection of claims 6, 8, 12, and 13 under 35 U.S.C. § 102(e) as being anticipated by Japanese Patent JP408334461A (JP '461). As amended, each claim recites a substrate cleaning apparatus for cleaning a substrate comprising a substrate cleaning bath to contain therein a substrate cleaning liquid comprising at least one liquid selected from a first group consisting of an aqueous solution of ammonium fluoride and a mixture of an aqueous solution of ammonium fluoride and hydrofluoric acid, measuring means for measuring characteristics of the cleaning liquid in the substrate cleaning bath, the characteristics being relative to the hydrofluoric acid concentration of the cleaning liquid, fluid feeding means for feeding at least one fluid selected from a second group consisting of ammonia and aqueous ammonia from a fluid source to the substrate cleaning bath, and control means for arithmetically processing a signal from the measuring means while cleaning a substrate to control the feeding of the fluid from the fluid source to the substrate cleaning bath by way of the fluid feeding means.

JP '461 teaches a wet treatment apparatus using a mixed aqueous solution of ammonium fluoride and hydrogen fluoride. JP '461 does not disclose a substrate cleaning bath containing therein a substrate cleaning liquid comprising at least one liquid selected from a first group consisting of an aqueous solution of ammonium fluoride and a mixture of an aqueous solution of ammonium fluoride and hydrofluoric acid, measuring means for measuring characteristics of the cleaning liquid in the substrate cleaning bath, the characteristics being relative to the hydrofluoric acid concentration of the cleaning liquid, fluid feeding means for feeding at least one fluid selected from a second group consisting of ammonia and aqueous ammonia from a fluid source to the substrate cleaning bath. Suppressing rises in hydrofluoric acid with controlled additions of ammonia or aqueous ammonia is novel, non-obvious, and more effective than prior art methods.

The Office Action again asserts that the recited fluids are not structural in light of *Thibault*. However, the "fluid feeding means" is a positively recited structural component of the "substrate cleaning apparatus," as clearly shown in claim 6 and discussed above.

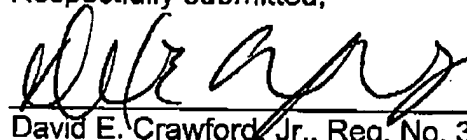
Because JP '461 does not disclose or suggest all of the elements of the claims, the Section 102 rejection is improper. Accordingly, Applicants respectfully request the rejection be withdrawn.

Conclusion

As it is believed that the application is in condition for allowance, a favorable action and Notice of Allowance are respectfully requested.

Date: 22 NOV 04

Respectfully submitted,



David E. Crawford, Jr., Reg. No. 38,118
Customer No. 26263
314.259.5810

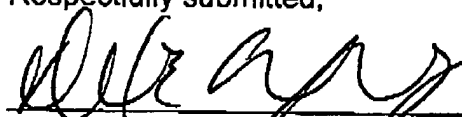
Because JP '461 does not disclose or suggest all of the elements of the claims, the Section 102 rejection is improper. Accordingly, Applicants respectfully request the rejection be withdrawn.

Conclusion

As it is believed that the application is in condition for allowance, a favorable action and Notice of Allowance are respectfully requested.

Date: 22 NOV 04

Respectfully submitted,



David E. Crawford, Jr., Reg. No. 38,118
Customer No. 26263
314.259.5810

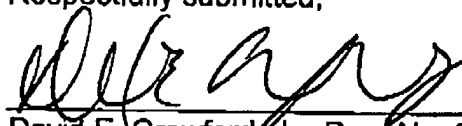
Because JP '461 does not disclose or suggest all of the elements of the claims, the Section 102 rejection is improper. Accordingly, Applicants respectfully request the rejection be withdrawn.

Conclusion

As it is believed that the application is in condition for allowance, a favorable action and Notice of Allowance are respectfully requested.

Date: 22 NOV 04

Respectfully submitted,



David E. Crawford, Jr., Reg. No. 38,118
Customer No. 26263
314.259.5810